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EVALUATING GROUP THERAPY FOR
APHASIA: WHAT IS THE EVIDENCE?

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Evaluating Group Therapy for Aphasia: What is the Evidence?

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Structured Abstract

Clinical Question: For people with aphasia following a stroke, is group therapy shown to be more effective on communication outcome measures reflecting impairment, activity, and/or participation than individual therapy or no therapy?

Method: Review of treatment efficacy research for group intervention in aphasia

Study Sources: Cochrane Database of Systematic Reviews, Evidence-Based Medicine Reviews, PubMed, MEDLINE®, CINAHL, CSA Linguistics and Language, Behavior Abstracts, Social Sciences Citation Index (Web of Science), EMBASE, PsycINFO®, ComDisDome: Communication Sciences and Disorders Dome, and speechBITE™

Search Terms: Aphasia AND (Group therapy OR Group Intervention)

Primary Results:

Results from a review of the literature indicate group therapy facilitates improvements across language modalities including linguistic, pragmatic, and discourse-based outcomes. These improvements generated significant gains in activity and participation levels, as defined in the ICF framework (WHO 2001), and were associated with additional psychosocial benefits. Improvements were frequently maintained following a period of no therapy. Therapy gains did not appear to correlate with aphasia type, severity, time post onset, and age. Wide variability in individual therapy progress is noted across studies.

Conclusions:

Group therapy is an effective clinical strategy for improving communication impairments following stroke. Further research is required to ascertain the role of individual and group therapy to improve communication outcomes at impairment, activity and participation levels. This would enable the development of optimal therapy schedules in relation to specific patient characteristics.

Clinical Scenario

Olivia is an experienced speech-language pathologist (SLP), managing a mixed inpatient subacute rehabilitation caseload as well as a community based caseload for adults requiring speech pathology services following stroke. Her caseload includes an increasing number of individuals with chronic aphasia. Service limitations allow each patient a short intensive inpatient rehabilitation stay. Following this service delivery is relatively flexible. The standard care model involves patients receiving individual outpatient therapy blocks in the clinic and community access and appointments at home as needed.

Olivia has a large number of people with aphasia who require ongoing management. She is particularly concerned at the growing number of people with aphasia more than 1 year post stroke who require ongoing services. Her busy inpatient caseload and more recent stroke patients receive service priority; consequently, patients with ongoing management needs often get deprioritized. One challenge Olivia faces is the differing levels of treatment patients who are 1 year post-stroke. They are at different stages of recovery, have different levels of severity, and need different levels of support. Olivia currently has a long waiting list and is only able to see many of her patients with chronic aphasia for review consultation and a short block of therapy sessions each year.

There have been important developments in neuroplasticity (e.g., Thompson, 2000), and Olivia's rehabilitation service director has a renewed interest in rehabilitation outcomes for allied health. At the same time, economic constraints on healthcare systems demand that clinicians provide cost effective clinical outcomes. To manage her caseload more effectively, Olivia decides to explore the possibility of running aphasia group therapy. She has read about a number of group therapy options, including traditional language therapy groups, supported conversation groups, and constraint-induced language therapy groups. However, she isn't sure of the therapeutic benefits and if these groups will suit her caseload.

The important elements of group therapy for her caseload include

- equivalent effectiveness when comparing outcomes between groups and individual therapy, even though the goals of these different treatment structures may vary; and
- the ability to accommodate a heterogeneous population (with regard to severity, aphasia type, and time post onset).

Olivia reviews the literature to ascertain which of her patients may benefit from group therapy and the types of group therapy that may be effective. She hopes that if the evidence is convincing enough, she can persuade her service director to support changes to the service delivery style currently in place.

Background

Aphasia is an acquired communication disorder, affecting language across all modalities of communication including language comprehension and production for oral and written modalities. It is a frequent consequence of a left-hemisphere stroke, with approximately one-third of stroke survivors affected (Brady, Kelly, & Enderby, 2011). Because of the breadth of potential impairment, there are many therapy approaches for remediating aphasia. Approaches can target specific language skills (e.g., naming) and different levels of the skills, as defined by the International Classification of Functioning, Disability, and Health Framework (e.g., accessing the community; World Health Organization, 2001).

Therapy efficacy can be determined by measuring a number of variables. Elman (1999) has embraced the World Health Organization (WHO) concept of an outcome stating that "increased participation in life" is the ultimate clinical goal for individuals with aphasia. Generalization of language skills from the clinic to increased participation in everyday contexts has been a long-standing outcome and challenge for many speech-language pathologists.

It has been argued that, clinically, group therapy offers many advantages over traditional individual therapy models for several reasons.

- Cost effectiveness—the treatment cost for each patient can be reduced while maintaining a per-hour reimbursement that is the same or better than individual therapy. However, some US insurers may not reimburse for group therapy.
- Naturalistic communication opportunities—the group setting facilitates provides a forum for participants to practice and improve pragmatic skills, such as turn-taking and topic initiation and

maintenance (Elman, 2007). The setting encourages the use of unpracticed natural utterances rather than the use of overlearned therapy targets. Conversation practice at this level may assist with generalization of language skills to daily interactions (Elman, 2007; Kearns & Elman, 2001). Group interactions involve multiple variables for communication practice, e.g., increasing the variety of communication acts and interacting with more communication partners. For individuals with mild aphasia, group treatment is an opportunity to receive therapy and focus on processing information in real time in a more socially challenging environment (Marshall, 1993).

- Positive psycho-social outcomes—it is widely reported that people with aphasia experience social isolation and reduced engagement in social activities (e.g., Brumfitt, 1993, 1994; Simmons-Mackie, 2001). In a recent systematic review, community aphasia groups were found to increase communicative activity and participation, though impairment level gains were less clear (Lanyon, Rose, & Worrall, 2012). Similarly, Ross, Winslow, Marchant, and Brumfitt (2006) reported positive outcomes for conversation, life participation, and psychological well-being after group-based treatment for chronic aphasia.

The purpose of this brief is to evaluate the evidence base for delivery of aphasia treatment within a group context. Using the Evidence Based Practice (EBP) framework, evidence was reviewed and interpreted within the context of the described clinical scenario.

Applying Evidence-Based Practice to Aphasia Therapy

Basing clinical treatment decisions on well-researched therapy approaches has become part of professional standards of practice among allied health clinicians. Dollaghan (2007), drawing on Sackett et al. (1996), defines EBP as “the conscientious, explicit, and judicious integration of 1) the best available external evidence, 2) the best available evidence internal to clinical practice, and 3) the best available evidence concerning the preferences of the fully informed patient” (p. 2).

Although EBP is considered best practice, and frequently advocated from a systemic perspective,

on-the-ground implementation remains a challenge. The integration of EBP into everyday clinical practice involves a transition from relying on experience and clinical expertise passed on from one clinician to another to becoming savvy evaluators of research, embracing new approaches to therapy suggested in research, and a creatively adapting research protocols and findings into the constraints of treatment schedules.

Togher and colleagues (2009) reviewed 35 randomized controlled trials and group comparison studies on aphasia treatment and reported issues with methodological quality pertaining to uncontrolled internal study biases. Togher and colleagues acknowledged that this lower standard of evidence could be due to a lack of clarity in methodological reporting. Research considered to be of a high evidence standard (e.g., systematic reviews and randomized controlled trials) was limited. Lower quality evidence constitutes the vast majority of available literature. Togher and colleagues noted that 90% of the studies they retrieved in their search were controlled case series and single-case study designs, or uncontrolled trials.

Appraising the methodological strengths and limitations of all levels of treatment research evidence enables clinicians to make informed decisions for clinical practice. Guidelines are available for systematic methodological rating of group studies (Maher, Sherrington, Herbert, Moseley, & Elkins, 2003; McDonald et al., 2006; Sherrington, Herbert, Maher, & Moseley, 2000) and single-case experimental designs (Tate et al., 2008). For example, the original PEDro-P scale is well suited to rating speech pathology research (Tate et al., 2004). These rating scales address a number of methodological biases, which have been identified in the design and reporting of treatment efficacy research. First, they evaluate pre-treatment biases including concealed and random allocation of participants to treatment conditions, and the degree of similarity across participants at baseline. Second, they assess performance biases during treatment including blinding of participants, therapists and assessors to the treatment conditions and the study hypotheses. Finally, they determine data analysis biases including dropout rates, intention to treat analysis and the rigor of statistical reporting. The PEDro-P rating scale is applied in this brief.

There is longstanding debate in aphasia research regarding the advantages and disadvantages of group and

single case design methodologies. In evidence based medicine, systematic reviews and meta-analyses of randomized controlled trials are widely regarded as the top level of evidence. This overemphasizes the importance of randomized controlled trials (Elman, 2006).

Systematic reviews frequently report either limited support for SLP intervention (e.g., Brady, Kelly, Godwin, & Enderby, 2012) or in some cases negative results (Bowen et al., 2012). This has been attributed to methodological limitations and poor reporting of the research being reviewed. In a review of the use of randomized controlled trials in speech pathology, Pring (2004) noted that this often relates to the diversity of clinical presentation seen in people with acquired language disorders. He suggests it is unlikely that any one type of therapy will be equally effective across such a heterogeneous group. The greater the variability within a group the less likely the results will show significant findings. Limiting group variability, however, also limits the clinically applicability of findings

Two meta-analyses emphasize the benefits of speech-language pathology intervention for individuals with aphasia. The first outlines the efficacy of treatment effects for individuals receiving speech pathology intervention for aphasia (Robey 1994) across multiple research designs. Robey (1994) reports “a clear superiority in performance of persons receiving treatment by a speech-language pathologist” (p. 582). Similarly in a subsequent meta-analysis of clinical outcomes across aphasia research, Robey (1998) reports “effect sizes for treatment of aphasia, as indexed by single-subject research, are remarkably large” (p. 468). It reports, that although the average effect size for people receiving treatment during chronic stages of aphasia is small; the improvements for people receiving treatment surpasses those not receiving treatment by a factor of 12 (Robey, 1998). Finally, Robey and colleagues stress the importance of using well designed single case studies to guide clinical practice (Robey, Schultz, Crawford, & Sinner, 1999).

Single-case design research allows for in depth reports of participant details and therapy specifics. This allows for more variation in populations and more flexibility in treatment options. Many researchers highlight the importance of single case design research for building a foundation of knowledge and evaluating the efficacy of therapy techniques (e.g., Beeson & Robey, 2006; Franklin, 1997; Howard, 1986). Methodological rating

scales have now been developed to ascertain the methodological strengths of single case experimental design research (Tate et al., 2008).

Engaging in the EBP Process

For many clinicians busy caseloads and administrative demands take priority over time allocated to read and evaluate research. Access, interpretation, and quality of research have also been highlighted as barriers to employing EBP regularly. In particular, there may be only limited research relevant to some specialist areas.

One strategy to encourage the use of the evidence in everyday clinical practice involves engaging clinicians in the EBP process. There are number available formats for developing a systematic approach to EBP implementation. The majority involve five steps: (1) asking a focused question; (2) searching for the evidence; (3) analyzing and appraising the evidence; (4) drawing a clinical bottom line and applying the evidence; and finally (5) evaluating application and disseminating findings (e.g., Dollaghan, 2007; Worrall & Bennett, 2001). The following five-step process was used to decide if research evidence supported the use of group-based therapy for aphasia.

Step 1. Developing the Clinical Question

Asking relevant and well-built clinical questions has been highlighted as the key for the successful implementation of subsequent steps in the EBP process and is also one of the first challenges clinicians must tackle (Schlosser, Koul, & Costello, 2007). Questions using the PICO format are most frequently employed to focus the literature search. PICO is an acronym referring to patient/problem, intervention, comparison, and outcome. Including these elements in the question that drives the literature search will yield a more finite and specific set of articles for review.

The PICO question developed for this scenario is:

In people with aphasia following stroke, is group therapy more effective compared to individual therapy or no therapy on communication outcome measures reflecting impairment, activity, and/or participation levels?

Step 2. Searching the Evidence

In an effort to capture the most relevant literature as well as the best quality evidence in our review of group-based aphasia treatment, several search strategies were employed.

An initial search of reviews within the Cochrane Database of Systematic Reviews, Evidence-Based Medicine Reviews (EMBR), and speechBITE™ did not generate any available reviews specifically related to group therapy and aphasia.

Following this, a comprehensive search was undertaken of nine electronic databases, including PubMed; MEDLINE® via Ovid; CINAHL via ebscohost; CSA Linguistics and Language, Behavior Abstracts; Social Sciences Citation Index (Web of Science); EMBASE; PSYCINFO; Communication Disorders Database (ComDisDome) via Proquest; and speechBITE™. The relevant journals were selected for targeted searching and reference lists from included articles were reviewed to identify any other possible articles for inclusion.

Search terms combined aphasia AND (group therapy OR group intervention) in keyword/topic/subject heading search options. A total of 268 articles were found before systematic inclusion and exclusion criteria were applied to narrow down the set of references specific to the clinical question.

Articles considered for review were peer-reviewed studies with empirical data of therapy outcomes for people with aphasia following stroke, written in English, and published from 1950 to 2012. Articles were excluded if they reported data for participants with bilingual aphasia, aphasia with coexisting additional speech and language disorders, or aphasia with etiology other than stroke. Studies of non-behavioral forms of language therapy, such as pharmacotherapy or transcranial magnetic stimulation, were excluded. Articles that reported expert opinion or general commentary, papers that did not report treatment data, and duplicates also were not included. The remaining references form the basis for the analysis and appraisal of the literature.

Step 3. Analyzing and Appraising the Literature

It is clear that both randomized controlled trials and smaller case series designs bring different, but complementary, value to research and clinical domains. It

is important to acknowledge this in order to make effective judgments when interpreting research and applying it to daily clinical practice. The best evidence, most likely, will be drawn from a combination of group studies and carefully controlled case series (e.g., Nickels, Howard, & Best, 2011). Both group studies and case series relevant to our clinical scenario are described and appraised. The evidence is discussed in four sections: group versus individual therapy; therapy combining group and individual therapy; group versus no therapy; and group therapy without a comparison group. The methodological ratings for the group studies are listed in Tables 1 and 2.

Empirical Research Comparing Group and Individual Therapy

Very few articles that directly compared group treatment to individual treatment were available, so these few studies presented are discussed rather than formally analyzed. The most comprehensive study of this nature was completed by the Veterans administration cooperative study on aphasia (Wertz, Collins, & Weiss, 1981). Participants were recruited from five Veterans Administration Medical Center Speech Pathology and Neurology Services. A total of 67 met the following inclusion criteria: ages 40 to 80 years; fluent and literate in English; single left-hemispheric thromboembolic stroke without further medical complications; adequate hearing, vision and dexterity in one hand to gesture and write; and 4 weeks post onset at entry with severity scores between the 15th–75th percentile on the *Porch Index of Communicative Ability* (PICA; Porch, 1967). Participants were randomly allocated to receive either (a) individual direct stimulus-response intervention or (b) language stimulation through interaction in a group setting facilitated by a speech pathologist, without a specific focus or any direct manipulation of speech and language impairment. Individual therapy consisted of 4 hours of direct therapy with the clinician, and 4 hours of machine-assisted treatment each week. Group therapy consisted of 4 hours of group discussion and 4 hours of recreational activities. The intervention was designed to last 44 weeks; participants were assessed on a variety of measures every 11 weeks of therapy completed. Over the course of the 44-week period, participant attrition was high. In summary, 86% of the cohort completed the 11-week assessment, 73% completed the 22-week assessment, 58%

completed the 33-week assessment and 50% completed the 44-week assessment. Geographical reasons were cited as the primary reason for ceasing intervention. Assessments were videotaped and scored by clinicians blind to group allocation and independent of centers involved in participant recruitment.

Results indicated a similar rate of change in both treatment conditions. Change in performance was observed past 26 weeks post-onset, indicating that both individual and group therapy appeared to facilitate language improvement beyond the often-cited 6-month spontaneous recovery period. Participants receiving individual therapy performed significantly better than those receiving group therapy on overall PICA scores. No significant differences were noted between groups on other measures of language impairment. On analysis of each participant's response, all made some progress on language impairment measures. Ratings of functional language use by a significant other revealed improvements for many participants. Notably, more group therapy participants tended to show a noticeable change on functional language skills than individual therapy participants over the different time points.

Two follow-up, retrospective studies used subsets of the data from the Wertz et al. (1981) study to evaluate any further differences between group and individual treatment delivery. Avent and Wertz (1996) judged improvement in pragmatic skills between group and individual therapy (Avent & Wertz, 1996). Avent, Wertz, and Auther (1998) considered the relationship between type of aphasia and pragmatic skills (Avent et al. 1998). In both studies, 10 fluent and 10 nonfluent individuals with aphasia (PICA percentile range 15–73) who had completed the 44-week intervention program previously outlined were selected. Videos of participants were used to analyze and assess participants' pragmatic skills.

Results indicated that participants in the group treatment showed significantly better pragmatic skills at the 11-week assessment. However, no differences in pragmatic abilities were found between groups at completion of the intervention (Avent & Wertz, 1996). Earlier improvements in pragmatic skills may be seen as a benefit of the naturalistic communicative setting frequently reported to be an advantage of group therapy. Avent and colleagues (1998) found that pragmatic skills improved at a similar rate for participants with fluent aphasia and those with non-fluent aphasia, with no

significant differences in overall improvement levels between groups. These studies are limited, as they evaluate only those individuals who successfully completed the entire program.

The series of large scale studies by Wertz and colleagues is seen as seminal research, providing the first empirical data to support group therapy efficacy. Despite this, it appears to fall short of methodological reporting standards used in more contemporary treatment efficacy research. These studies receive a PEDro-P scale ratings of 4/10 (Wertz, Collins, & Weiss, 1981) and 3/10 (Avent & Wertz, 1996; Avent et al., 1998). (See Table 1 for overall ratings and Table 2 for details of PEDro-P Scale rating.) These scores are consistent with methodological quality ratings reported by Togher and colleagues (2009). They reported mean scores of 4.4/10 for randomized controlled trials and 2.6/10 for non-randomized group studies. These relatively low scores are attributable to typical limitations, such as difficulties in blinding participants and therapists to treatment condition, lack of intention to treat analysis, and no reporting of statistical verification of baseline similarity across treatment conditions. Though the scores are low on scales of methodological quality, the work of Wertz and colleagues provides invaluable clinical information on group therapy and its potential for achieving positive communication outcomes for individuals with aphasia.

Empirical Research Combining Individual and Group Therapy

Group therapy typically is seen as an adjunct to individual therapy. In the clinical context, it offers effective use of clinical time and provides the individual with aphasia with more opportunity to practice strategies trained in individual sessions, in a supportive and naturalistic environment. A number of studies have investigated group therapy concurrent with individual treatment.

Eales and Pring (1998) report outcomes for four individuals who received six 30 min individual therapy sessions over a 3-week period and then six 1-hour group sessions spread over the same time period. Participants ranged from 5–20 months post-onset of stroke and from severe to mild in aphasia severity. Two sets of related words were targeted in therapy. Half of each set was treated exclusively during individual therapy. The target sets of words occurred due to chance during group

therapy discussions. A final set of untreated words was included for experimental control to demonstrate that only treated words improved. Participants were assessed on all treated and untreated items before treatment, after individual treatment, after group treatment, and finally at one month post-treatment.

Analyses indicated that all items treated during the individual therapy phase improved significantly, and words encountered only during group therapy also improved. Further, it was reported that participants with mild aphasia generalized more readily following individual therapy while participants with severe aphasia improved only on treated items following individual therapy. However, the group therapy did lead to improvement on other items, not in the treated word set, for those severely impaired.

Eales and Pring (1998) reported that lexical semantic tasks facilitated word finding in aphasia and that word finding continued to improve in a group therapy setting, which encourages more naturalistic communication interactions and more economical use of resources. The general facilitation of both individually treated and untreated words might suggest that the group therapy was sufficient; however, the greatest gains were made with the individually treated items. It should be noted that this study was limited in two respects. First, only a single baseline measure was made and so it is possible that the improvements were in part related to simple exposure to the words during testing over the course of the study. This is reasonably likely, given that the control words (untreated and unrelated to the treated word set) also demonstrated some improvement. With this design, a comparative control group taking into account treatment order effects would have helped to evaluate the study hypotheses more thoroughly.

In a similar small-sample study, functional and impairment level outcomes following a 1-month intensive therapy block for eight individuals with chronic aphasia were explored (Code, 2010). Participants were between 43–73 years old; time post onset ranged from 9–70 months; type of aphasia included Wernicke's, Broca's, and Global aphasia; and severity ranged from mild to severe. Participants were assessed with the English language version of the *Aachen Aphasia Test* (EAAT; Lomas et al., 1989), and the *Communicative Effectiveness Inventory* (CETI; Miller, Willmes, & De Bleser, 2000) at least twice during a 1-month period before treatment, immediately

following treatment, and once again 1 month following treatment. The intensive treatment involved daily intervention in both individual and group formats; in addition a weekly counseling and education group was available for family members and caregivers.

Based on scores from the EAAT, Code reported significant improvements from pre-treatment to immediate post treatment, as well as from immediate to 1-month post-treatment. These findings indicated that participants made strong gains with combined individual and group-based treatment and continued making communication gains following therapy. However, CETI scores did not show a significant improvement for the participant group in communication effectiveness. On examination of individual data, however, two participants demonstrated statistically significant gains.

Results from individual participants are emphasized as more clinically relevant in many cases. Code (2010) reported substantial variability in individual results, which did not appear related to age, time post onset, or severity of aphasia. Another study of communicative function and impairment gains following a 1-month group intensive program found that all five participants made gains on at least one measure and three made gains on multiple measures (Mackenzie, 1991). Again, great individual variability was reported.

Empirical Research Comparing Group and No Therapy

Only one article was included on the efficacy of group therapy compared to no therapy, in a deferred therapy comparison group (Elman, 1999). 24 participants met the following criteria: chronic aphasia for more than 6 months following a single left hemisphere stroke; a score between the 10th and 90th percentile on the *Shortened Porch Index of Communicative Ability* (SPICA; Kearns & Elman, 2001); younger than 80 years old; no other medical problems; and premorbidly literate in English. Participants were randomly allocated to either immediate or deferred group treatment. No significant differences between groups on prognostic variables or demographics existed at baseline. The immediate treatment group participated in 2.5 hours of group therapy twice per week, plus a 30 minute social break mid-therapy. The deferred treatment group participated in social or movement groups matching the period of the immediate therapy group to ensure social opportunities were matched

between groups. Participants were assessed at baseline, after 2 and 4 months of therapy and 4–6 weeks following completion of the speech therapy program. The deferred treatment group was also assessed immediately before commencing their speech pathology intervention. Assessments included the SPICA, Western Aphasia Battery (WAB; Kertesz, 1982), and *Communicative Abilities in Daily Living* (CADL; Simmons-Mackie, 2001). To evaluate psycho-social benefits more carefully, the CETI (Miller et al., 2000), the *Affect Balance Scale* (ABS; Bradburn, 1969), interview data, and connected speech samples were also collected (Elman & Bernstein-Ellis, 1999b). Assessments were completed by speech-language pathologists not involved in administering treatment and blind to group allocation.

Elman (1999) reported significant improvement on the SPICA and WAB, but not on the CADL with communication therapy in both the immediate and deferred treatment conditions. There were no significant changes observed in the deferred treatment group in response to the social and movement interventions. Consistent with this, the immediate treatment group appeared to maintain gains but made no further improvement while undergoing the social or movement interventions. When comparing group results for severity, improvements were significant only for the individuals with moderate-severe aphasia on both the WAB and CADL tests (no change on the SPICA was expected given that this measure was used to balance the two participant groups).

In addition to dependent measures of language performance, Elman and Bernstein-Ellis (1999b) interviewed participants and family members about the positive and negative aspects of the group intervention. Several themes were identified from these interviews including increased confidence, independence, motivation and social engagement. They also reported feeling happier and enjoyed making friends and helping others. Such psychosocial benefits of group therapy have been reported by a number of other researchers (e.g., Ewing, 2007; Kearns & Elman, 2001).

Table 1 provides overall research design and methodological ratings on the PEDro-P scale for these studies, Table 2 presents the details of the PEDro-P scale ratings, and Table 3 summarizes the participant characteristics, therapy schedules and conclusions answering our PICO question.

Empirical Evidence Without a Comparison Group

A number of other studies without specific comparison groups were also found. These are included here to make observations about treatment type and characteristics of participants responding to group therapy. A large variety of therapy techniques and group formats have been explored including functional therapy groups (Aten, Caligiuri, & Holland, 1982); structured therapy groups (Bollinger, Musson, & Holland, 1993); problem solving group therapy for mild aphasia (Marshall, 1993); semantic feature analysis focused therapy group with discourse elaboration (Antonucci, 2009; Falconer & Antonucci, 2012); structured group therapy to facilitate and practice single word writing in conversation (Clausen & Beeson, 2003), multi-modal group therapy (Attard, Rose, & Lanyon, in press) and group therapy using a total communication approach (Osborne & Nickels, 2012).

In a critically appraised topic (CAT) evaluating constraint induced aphasia therapy (CIAT), which by definition occurs in a group of 2 or more individuals with aphasia, it was reported that this therapy may be effective in improving language outcomes on a variety of impairment level and narrative discourse language measures. Generalization of these gains to everyday communication contexts remains unclear. (Articles included in review: Breier et al., 2009; Cherney, Patterson, Raymer, Frymark, & Schooling, 2008; L. M. Maher et al., 2006; Meinzer, Djundja, Barthel, Elbert, & Rockstroh, 2005; Meinzer, Elbert, Djundja, Taub, & Rockstroh, 2007; Meinzer, Streiftau, & Rockstroh, 2007; Pulvermuller et al., 2001; Szaflarski et al., 2008). (CAT available at http://www.ciap.health.nsw.gov.au/specialties/ebp_sp_path/caps.html#lang)

More recent research has indicated that small-group-based therapy using similar therapy activities to traditional CIAT, but allowing a multimodal or unconstrained intervention approach, may facilitate improved language outcomes in intensive (Attard et al., in press) and reduced intensity (twice weekly) formats (Osborne & Nickels, 2012).

One final area of research that has been advocated as helpful for individuals with aphasia is communication partner training. This is a therapy technique which is quite flexible and a number of group therapy formats have been reported in the literature. Group therapy typically

involves education about aphasia and strategies for improving communication between individuals with aphasia and their primary caregivers, with time to analyze and practice these strategies in group and individual formats. There is an emphasis on monitoring communication breakdown and facilitating communication for the person with aphasia. Analysis is often conversation analysis with individual goals targeted during therapy. Studies have reported improvements in facilitative communication behaviors, reductions in behaviors impeding communicative attempts of communication partners, as well as improvements in initiation and repair sequences by people with aphasia. From the literature to date, communication partner training appears to be effective with individual dyads as well as with groups of dyads. Direct education regarding specific strategies to facilitate communication has been shown more effective than general (indirect) education about aphasia (Purdy & Hindenlang, 2005; Turner & Whitworth, 2006).

What About Treatment Intensity?

Before drawing clinical decisions from the studies discussed above, it is important to acknowledge the influence of other factors, such as the intensity of the therapy provided and the rationale for selection of specific treatment protocols.

In a review of 8 aphasia therapy studies that represented controlled or randomized controlled trials, Bhogal, Teasell, and Speechley (2003) found that studies with positive treatment effects provided, on average, about 9 hours of therapy per week for about 11 weeks duration. Studies that reported no treatment effect tended to provide an average of 2 hours per week for ~23 weeks (p. 987). However, all eight studies were published before 1990. Since then, positive effects have been found for both individual and group intervention protocols requiring between 5 and 15 hours of intervention per week for periods as short as 2 weeks and as long as 40 months (Cherney, Patterson, Raymer, Frymark, & Schooling, 2008a). Relating specifically to group therapy, Elman and Bernstein-Ellis (1999a) reported improvements in communication outcomes and well-being in 5 hours a week of therapy for 8 weeks. However, it is important to note the two meta-analyses by Robey (1994, 1998) that included numerous lower intensity interventions demonstrated large effect sizes for aphasia rehabilitation.

Step 4. The Evidence-Based Decision

Following the review of the literature, Olivia is convinced of the benefits of group therapy and decides that a number of different groups need to be available to provide the best therapy options for her caseload. This will ensure that individuals are able to access appropriate therapy with the intensity required to generate and maintain positive outcomes. It is clear that group therapy is efficacious in promoting language improvements but has the added benefit of providing a supportive psychosocial network frequently lacking in the lives of people with aphasia. She decides to run the following groups:

1. An ongoing language group, targeting impairment level goals in discourse based interactions (Kempler & Goral, 2011), using therapy principles/strategies from semantic feature analysis and therapy tasks derived from CIAT, but applied in a multi-modal format. For this to be effective she decides to hold a 2-hour group 3 times per week, in line with Elman and Bernstein-Ellis (1999a).
2. A higher level language discussion and problem-solving group, targeting activity and participation level goals, and meeting once a week (Marshall, 1993).
3. Intermittent communication partner training groups, targeting activity and participation level goals (Purdy & Hindenlang, 2005).

Step 5. Evaluating Clinical Practice

Much of the research reviewed here reports the implicit psychosocial benefits of any group therapy and in order to complete the EBP process Olivia plans to evaluate these groups on standard measures of both language and psychosocial outcomes. In addition, this process has highlighted the importance of using data from her therapy sessions and groups to measure benefits. The use of rigorous data-driven outcome measures for therapy increases clinical confidence in therapeutic efficacy (Baker & McLeod, 2011; Causa & Layfield, 2010; Tate, Taylor, Perdices, Aird, & McCarry, 2010). A method for distinguishing therapeutic outcomes from changes resulting from extraneous variables (e.g., spontaneous recovery), has recently become available (Tate, Taylor, & Aird, 2012). This model for assessing treatment effect (MATE) offers a structured approach for evaluating

clinical practice with varying levels of rigor to ensure rehabilitation is driving outcomes. Table 4 lists a number of readily available references for developing skills in each area of the EBP process and may facilitate clinicians overcoming barriers.

Conclusion

There is evidence that group therapy is effective for communication outcomes and it has been argued to facilitate the management of heavy clinical caseloads. Though other reviews have demonstrated the benefits of individual-based therapy (e.g., Robey, 1994, 1998), group-based therapy offers some benefits that individual therapy does not, particularly in psychosocial- and conversation-level outcomes. The studies discussed in this brief support the efficacy of group therapy for individuals with aphasia on both impairment and participation level outcome measures. The therapy goals in these studies covered a broad range of communication skills, including word finding, pragmatics, and discourse skills. Clearly, further research is warranted to better define the best fit for specific patient characteristics and treatment protocols, as well as the relative contributions of individual and group therapy to successful participation in life.

For allied health clinicians, basing clinical decisions on well-researched therapy approaches is being incorporated into professional standards of practice more frequently. This Brief has outlined several methods and resources to assist clinicians in developing skills fundamental to utilizing EBP, including using relevant databases and optimizing search strategies; evaluating the type and methodology of clinically relevant research; translating the research into knowledge and skills that can be applied within the clinical setting; and evaluating clinical practice.

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Table 1. Research Design and Overall Methodological Ratings of Studies

Reference	Research Design	PEDro-P Scale Methodological rating
Wertz et al. (1981)	Randomised controlled trial	4/10
Avent & Wertz (1996)	Retrospective Group Comparison	3/10
Avent et al. (1998)	Retrospective Group Comparison	3/10
Elman & Bernstein-Ellis (1999a)	Randomised controlled trial	2/10

Table 2. Detailed PEDro-P Scale Ratings of Studies

Pedro-P Scale Item	Reference			
	Wertz et al. (1981)	Avent and Wertz (1996)	Avent et al. (1998)	Elman and Bernstein-Ellis (1999a)
Eligibility criteria specified	Y	Y	Y	Y
Random allocation to intervention	Y			Y
Random allocation was concealed				
Baseline similarity				
Blinding of participants				
Blinding of therapists				
Blinding of assessors	Y			
Results reported for at least 85% of participants initially enrolled in treatment follow up	Y	Y	Y	
Intention to treat analysis				
Between group comparisons	Y	Y	Y	Y
Point estimates and variability		Y	Y	
The PEDro P Scale can be downloaded from http://www.psycbite.com/docs/The_PEDro-P_Scale.pdf				

Table 3. Aphasia Group Therapy Studies, Intervention Variables, and Findings

Reference	Research Design	Participant Characteristics and Therapy Schedule	Findings
Wertz et al. (1981)	Randomised Controlled Trial	<i>N</i> = 67 mixed severity and type of aphasia Intervention 1: 4hrs individual direct stimulus-response therapy + 4hrs machine assisted therapy per week Intervention 2: 4hrs discussion based group therapy without specific reference to language impairment + 4hrs recreational activities per week	Group therapy is effective for improving language deficits following stroke. Group therapy appears to continue to be beneficial in improving language outcomes between 6–12 months post stroke. Individual therapy may yield slightly higher scores on impairment level language outcomes.
Avent & Wertz (1996)	Retrospective Group Comparison	As Above	Group therapy is effective for improving pragmatic skills following stroke and may facilitate earlier skill development over individual therapy.
Avent et al. (1998)	Retrospective Group Comparison	As Above	Group therapy is effective for fluent and non-fluent types of aphasia following stroke.
Elman & Bernstein-Ellis (1999a)	Randomised Controlled Trial	<i>N</i> = 24 mixed severity and type of aphasia, > 6 mos. post onset Intervention 1: 2.5hrs group communication therapy + 30mins social intermission break; twice per week for 32 weeks Intervention 2: 3hrs of social group activities of participant's choice (e.g., support groups, church activities and movement groups) for 32 weeks	Group based communication therapy is effective for improving impairment level language outcomes (WAB and SPICA) but not functional language as measured by the CADL (important to note that participants were engaging in functional activity groups as part of the control condition). Benefit of communication therapy were maintained Individuals with Mod-Severe aphasia made improvements on the WAB and CADL following group therapy.
Elman & Bernstein-Ellis (1999b)	Qualitative Research Design	As Above	Group based communication therapy lead to positive psychosocial outcomes for participants over and above other group activities
Eales & Pring (1998)	Case Series	<i>N</i> = 4; mixed severity and type of aphasia; > 5months post onset Six 30-min. individual therapy sessions over 3 weeks followed by sic 1hr group therapy sessions over 3 weeks	Individual and group therapy benefited all individuals on treated, related untreated and control items and these gains were maintained. Although all participants made gains, individual variability existed within the cohort Difficult to tease apart the benefits of individual vs. group therapy as no control condition counteracting therapy order was included in the design. Individuals with mild and severe aphasia benefitted from therapy.
Code (2010)	Case Series	<i>N</i> = 8; mixed severity and type of aphasia Individual components of group and individual therapy not specified. All participants received combined individual and group therapy for 1 month intensive	An intensive combination individual and group therapy block facilitated improvements in impairment level scores for the group as a whole as well as functional communication scores in two individuals. Clinically relevant therapy gains did not appear to correlate with aphasia type, severity, time post onset, and age.

Table 4. References and Templates for Developing Skills Across Areas of the EBP Process That May Facilitate Clinicians in Overcoming Barriers to Implementation

<p>STEP 1.</p> <p>Asking a question in PICO format</p>	<p>Armstrong, E. C. (1999). The well-built clinical question: The key to finding the best evidence efficiently. <i>Wisconsin Medical Journal</i>, 98(2), 25–28.</p> <p>Onady, G. M., & Raslich, M. A. (2003). Evidence-based medicine: Asking the answerable question (question templates as tools). <i>Pediatrics in Review</i>, 24(8), 262–265.</p> <p>Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: A key to evidence-based decisions. <i>ACP Journal Club</i>, 123(3), A12–13.</p> <p>Schlosser, R. W., Koul, R., & Costello, J. (2007). Asking well-built questions for evidence-based practice in augmentative and alternative communication. <i>Journal of Communication Disorders</i>, 40(3), 225–238.</p>
<p>STEP 2.</p> <p>Searching the evidence effectively</p>	<p>Allison, J. J., Kiefe, C. I., Weissman, N. W., Carter, J., & Centor, R. M. (1999). The art and science of searching MEDLINE to answer clinical questions: Finding the right number of articles. <i>International Journal of Technology Assessment in Health Care</i>, 15(2), 281–296.</p> <p>Rosenberg, W. M. C., Deeks, J., Lusher, A., Snowball, R., Dooley, G., & Sackett, D. (1998). Improving searching skills and evidence retrieval. <i>Journal of the Royal College of Physicians of London</i>, 32(6), 557–563.</p>
<p>STEP 3.</p> <p>Analyzing and appraising the evidence</p>	<p>Dollaghan, C. A. (2007). <i>The handbook of evidence-based practice in communication disorders</i>. Baltimore: Brookes.</p> <p>Worrall, L. E., & Bennett, S. (2001). Evidence-based practice: Barriers and facilitators for speech-language pathologists. <i>Journal of Medical Speech-Language Pathology</i>, 9(2), xi–xvi.</p>
<p>STEP 4.</p> <p>Translating the evidence into clinical practice</p>	<p>Causa, B., & Layfield, C. A. (2010). Supporting EBP in Everyday Clinical Practice. Paper presented at the Speech Pathology Australia National Conference, Darwin, Australia.</p> <p>Dollaghan, C. A. (2007). <i>The handbook of evidence-based practice in communication disorders</i>. Baltimore: Brookes.</p> <p>Fucetola, R., Tucker, F., Blank, K., & Corbetta, M. (2005). A Process for Translating Evidence-Based Aphasia Treatment into Clinical Practice. <i>Aphasiology</i>, 19(3–5), 411–422.</p> <p>Tate, R., McDonald, S., Perdices, M., Togher, L., Schultz, R., & Savage, S. (2008). Rating the methodological quality of single-subject designs and n-of-1 trials: Introducing the single-case experimental design (SCED) scale. <i>Neuropsychological Rehabilitation</i>, 18(4), 385–401.</p>
<p>STEP 5.</p> <p>Evaluating clinical practice</p>	<p>Garrett, K., & Pimentel, J. (2007). Measuring outcomes of group therapy. In R. J. Elman (Ed.), <i>Group Treatment of Neurogenic Communication Disorders. The Expert Clinician's Approach</i> (2nd ed.). San Diego: Plural Publishing.</p> <p>Tate, R., Taylor, C., & Aird, V. (2012). Applying empirical methods in clinical practice: Introducing the model for assessing treatment effect. <i>Journal of Head Trauma Rehabilitation</i>. doi: 10.1097/HTR.0b013e31824e103e</p>